

XXXVIII.—*Diagnoses of new Species of Pleurotomidæ in the British Museum.* By EDGAR A. SMITH.

I HAVE already published in these 'Annals'* numerous descriptions of Pleurotomidæ in the collection of the British Museum. Although it is difficult to recognize the species from the diagnoses alone, through having published names attached to them they become scattered abroad in continental and other collections, and by this means become known.

Already several of the species previously described have been correctly identified and figured by other writers; and it is to be hoped that the remainder will sooner or later find their way into illustrated monographs. In this, as in the previous papers, I have adopted the plan of placing all the forms in the comprehensive genus *Pleurotoma*, at the same time giving in brackets the group or section to which they belong or to which they seem most nearly related.

Pleurotoma (Surcula) fuegiensis.

Testa breviter fusiformis, purpureo-rosca, cauda pallidiore ornata; anfract. 7, primi 2, apicem constituentibus, magni, læves, rotundi, cæteri superne læves, leviter concavi, inferne convexiusculi et costis perobliquis ad 12 (in anfr. ultimo medio evanidis) instructi; apertura longit. totius $\frac{2}{3}$ adæquans; labrum tenue, superne ad suturam late profundeque sinuatum; columella in medio leviter arcuata, basi obliqua; canalis brevis, latus, paululum recurvus. Long. $11\frac{1}{2}$ mill., diam. 4.

Hab. Straits of Magellan (*Dr. Cunningham*).

The apex of this species is large and obtuse. The oblique ribs are thickest at their upper ends, and below the middle of the body-whorl the purple-pink colour is deepened, forming an obscure spiral band.

Pleurotoma (Drillia) unifasciata.

Testa solida, oblonga, turrita, subrimata, fulvescens, circa anfr. ultimum ad peripheriam zona latiuscula fusca cincta; anfract. 12, convexi, superne paululum concavi, costis crassis rotundatis inferne incrassatis (in anfr. ultimo 7 ad peripheriam obsoletis) instructi, transversim tenuiter lirati; apertura albida, longitudinis totius $\frac{3}{4}$ adæquans; columella valde callosa; canalis latissimus, brevis; sinus latissimus, profundus. Long. 35 mill., diam. 13.

* Vol. xix. (1877) pp. 488-501; vol. x. (1882) pp. 206-218, 296-306; vol. xiv. (1884) pp. 317-329.

Hab. Ceylon and China Sea.

A species of solid structure, of a palish fulvous colour, with a single brown band around the periphery of the body-whorl.

Pleurotoma (Drillia) crassa.

Testa crassa, ovato-fusiformis, alba, ad apicem dilute violacea, hic illic (præcipue infra suturam) fusco notata; anfract. 11? (apice abrupto), in medio aliquanto angulati, superne ad suturam obliquo breviter lirati vel crenulati, costis medio subacute angulatis, superne suturas vix attingentibus (in anfr. ultimo ad 12 fere basi continuis) liris elevatis spiralibus (in anfr. superioribus 2-3 in ultimo 15-16 supra costas nodosis) clathrati; apertura alba, longitudinis testæ $\frac{3}{4}$ æquans; columella rectiuscula, callo crasso suturam versus tuberculoso induta; cauda crassa, subrimata; labrum paululum post marginem costa ultima maxima incrassatum; sinus modice profundus; canalis brevissimus, recurvus.

Long. 22 mill., diam. fere 8.

Hab. Bombay.

A species of a solid build, white, with a violet apex and a few brownish spots scattered here and there on the upper halves of the ribs, and dotted with the same colour immediately beneath the suture. It is allied to *P. sacra*, Reeve, but differs from it in having fewer ribs which are angled, and the upper ends of them are not nodose at the suture, and the coloration is different in the two forms.

Pleurotoma (Drillia) roseobasis.

Testa ovato-fusiformis, spira acuminata, alba ad basim anfract. ultimi roseo tineta; anfract. 10, superne leviter concavi, deinde convexiusculi, costis modice gracilibus, superne versus suturam evanidis (in anfr. ultimo 12 basi continuis) instructi; sulcis spiralibus distantibus (in anfr. superioribus 4, in ultimo circa 13) insculpti; anfr. ultimus latus; apertura supra alba, inferne rosca, longit. totius ad $\frac{3}{4}$ æquans; sinus parvus, minime profundus; canalis brevis, recurvus.

Long. 22½ mill., diam. 8½.

Hab. — ?

The characteristic style of coloration at once indicates this species. The spiral sulcations are situated on the lower half of the whorls, the upper portion having but a few rugose lines of growth upon it.

Pleurotoma (Drillia) ventricosa.

Testa ovata, superne acuminata, rubro-testacea, albo rubroque

minute articulata, spiraliter conferte lineata; anfract. $10\frac{1}{2}$, primi $2\frac{1}{2}$ vitrei, politi, cæteri superne aliquanto concavi, inferne rotundati, costis obliquis infra excavationem subtruncatis (in anfr. ultimo ad 12 versus basim evanidis) instructi, liris spiralibus confertis minime elevatis incrementique lineis flexuosis concinne ornati; apertura intus rubro-fusca, longit. totius fere $\frac{1}{2}$ æquans; columella subrecta, callo tenui superne incrassato labroque juncto induta; sinus rotundatus; labrum margine albo crenulato, extra costa maxima validissime incrassatum; canalis brevis, latus, recurvus.

Long. $27\frac{1}{2}$ mill., diam. $9\frac{1}{2}$.

Hab. Between Percy Island and Queensland, E. Australia (*McGillivray*).

The general tone of this shell is reddish testaceous, slightly washed with white; one of the white lines a little below the middle of the whorls is more conspicuous than the rest.

Pleurotoma (Drillia) granularis.

Testa fusiformi-ovata, ochracea, circa medium anfractuum zona alba fasciata; anfract. 10, superne leviter excavati, longitudinaliter oblique et transversim sulcati, granularum seriebus spiralibus (in anfr. superioribus 4-6, in ultimo circiter 20) ita productis, infra suturam obtuse carinati vel incrassati; apertura alba, longit. testæ totius $\frac{5}{11}$ adæquans; columella subrecta, crasse callosa, ad suturam tuberculosa; sinus latiusculus; labrum extra incrassatum; canalis brevis, recurvus.

Long. 22 mill., diam. 7.

Hab. — ?

The longitudinal sulci are about sixteen in number on a whorl, and thus the rows of granules in a longitudinal direction are about the same. The granules are paler than the furrows which produce them.

Pleurotoma (Drillia) rimata.

Testa livido-carnea, elongata, crassa, aliquanto turrata, distincte rimata; anfract. 13 convexiusculi, superne leviter concavi, costis obliquis, suturas vix attingentibus medio subangulatis (in anfr. ultimo circiter 11 basi evanidis) instructi, liris spiralibus (in anfr. superioribus 5-6, in ultimo 16-18) cincti; anfr. ultimus basi minime attenuatus, circa rimam paululum inflatus, pone labrum subaurantio tinctus; apertura livido-purpurea, longitudinis testæ $\frac{2}{5}$ æquans; sinus latus, prope suturam situs; columella valde callosa, obliqua; canalis brevissimus, recurvus.

Long. 31 mill., diam. 9.

Hab. — ?

The distinct rimation and the livid purplish flesh-colour are the chief characters of the species.

Pleurotoma (Drillia) essingtonensis.

Testa elongate fusiformi-ovata, rubro-fusca, circa anfractuum medium liris duabus albis cineta; anfract. 10, primi 3 læves, politi, cæteri convexiusculi, superne leviter concavi, ad suturam incrassatione crenulata ornati, costis obliquis (in anfr. ultimo 11 basim versus obsoletis, ultima pone labrum validissima) instructi, liris spiralibus ad 8, circa medium duabus supra costas albis quam cæteris majoribus, cineti, incrementique lineis striati; anfr. ultimus liris circa 25 ornatus, tribus paululum infra medium albis; apertura longit. totius $\frac{9}{20}$ adæquans; columella callosa; sinus mediocris; canalis brevis, recurvus.

Long. 20 mill., diam. 6.

Hab. Port Essington, North Australia.

The spiral lirations are somewhat thickened on the ribs, thus producing a subnodulous appearance.

Pleurotoma (Drillia) parva.

Testa ovata, fusco-alba, prope suturam fuscescens, circa anfr. ultimi medium supra costas punctorum fuscorum serie unica et zona pallidiore infra illam, ornata; anfract. 6, primi 2 læves, cæteri superne juxta suturam constricti, deinde planiusculi, costis superne nodulosi (in anfr. ultimo 9, ad basim liris spiralibus 4-5 circa caudam interruptis) instructi, incrementi lineis striati; apertura longitudinis totius $\frac{2}{3}$ adæquans; columella callo crassiusculo induta; sinus profundus; labrum tenue.

Long. $7\frac{1}{2}$ mill., diam. 3.

Hab. Gulf of Suez (*MacAndrew*).

The last rib on the body-whorl, which is situated at some distance from the margin of the labrum, is much larger than the others and is stained with brown. The slight constriction a little below the suture gives the ribs a nodulous aspect at their upper ends. A similar appearance exists at the bottom of the ribs on the last whorl, occasioned by a like depression.

Pleurotoma (Drillia) jucunda.

Testa acute ovata, spira alba, circa medium anfractuum et inferne ad suturam linea fusco-cornea ornata, anfr. ultimi dimidio inferiore lutescente, paululum infra medium serio spirali guttarum albarum cincto; anfract. $7\frac{1}{2}$ convexiusculi, superne leviter constricti, longitudinaliter costati, costis superne attenuantibus (in anfr. ultima 10 aliquanto infra medium evanidis) instructi, spiraliter

minutissime incrementique lineis striati; cauda anf. ultimi liris crassis 4 circumdata; apertura long. totius $\frac{8}{17}$ æquans; labrum costa ultima valide incrassatum, superne vix sinuatum; canalis brevissimus.

Long. $8\frac{1}{2}$ mill., diam. $3\frac{1}{2}$.

Hab. —?

From the middle of the body-whorl upward the shell is white, with the exception of two fine brownish lines, one around the middle of the whorls and the other at the inferior suture.

Pleurotoma (Drillia) consanguinea.

Testa elongate ovato-fusiformis, dilute fusca; anfract. 11–12 sutura carinata undulata discreti, infra carinam sulco spirali minime profundo leviter constricti, infra sulcum costis subdistantibus leviter obliquis (in anfr. ultimo ad 10 versus peripheriam obsoletis) instructi, ubique striis spiralibus distinctis supra interque costas continuis ornati; anfr. ultimus infra medium vix constrictus; apertura angusta, longitudinis testæ $\frac{2}{5}$ æquans; labrum margine tenui, extra valde incrassatum; sinus magnus, paululum infra suturam situs; columella subrecta, superne tuberculata, callo tenui induta; canalis brevissimus, recurvus.

Long. 20 mill., diam. $6\frac{1}{2}$.

Hab. —?

There is every probability of this species being an inhabitant of the Chinese seas, since it possesses so much of the general character of several forms from that region. *P. sinensis*, Hinds, appears to be its nearest relative. The general form, and especially that of the body-whorl and the much shorter canal, are the principal marks of distinction; also the ribs are less angular, and the colour is uniform.

Pleurotoma (Drillia) rubro-fusca.

Testa acuminato-ovata, rubro-fusca, costis, apice et cauda lutescentibus ornata; anfract. 8, convexiusculi, superne ad suturam carina crassissima cincti, deinde costis crassis (in anfr. ultimo 8 versus basim obsoletis) instructi, transversim incrementique lineis striati; apertura rubro-fusca, longit. totius $\frac{1}{3}$ paululo superans; columella callo fusco superne labro juncto induta; canalis brevissimus; sinus aliquanto profundus.

Long. $11\frac{1}{2}$ mill., diam. 4.

Hab. China Sea.

The last rib on the body-whorl is considerably larger than the rest. The keel below the suture is very large.

Pleurotoma (Drillia) bilirata.

Testa fusiformis, fusca; anfract. 11, primi 2 læves, politi, cæteri convexiusculi, superne inferneque ad suturas carinati (carina superiore maxima) costis rotundatis versus suturas evanidis (in anfr. ultimo 9 ad peripheriam obsoletis) instructi, circa medium liris spiralibus duabus supra costas valde prominentibus et striis tenuibus ornati; anfr. ultimus liris circiter 15 succinctus; apertura purpureo-fusca, long. totius vix $\frac{2}{5}$ æquans; columella subrecta, callo tenui superne cum carina ad suturam tuberculo parvo formante induta; canalis mediocris, vix recurvus; sinus rotundatus, infra carinam situs.

Long. 19 mill., diam. $5\frac{1}{3}$.

Hab. — ?

The two lirations encircling the middle of the whorls are very prominent on the ribs and almost obsolete in the interstices.

Pleurotoma (Drillia) suavis.

Testa ovato-fusiformis, lutescens, inter costas rufo tinctorum; anfract. $7\frac{1}{2}$, primi $2\frac{1}{2}$ læves, convexi, cæteri superne concaviusculi, inferne convexi, costis versus suturam superne evanidis (in anfr. ultimo 12 in medio obsoletis) instructi, liris spiralibus conspicuis 3 (2 circa medium, tertia juxta suturam inferiorem) striisque tenuibus ornati; anfr. ultimus liris circa 14 supra costas subnodosis cinctus; apertura longit. totius $\frac{5}{12}$ adæquans; sinus subprofundus, paululum infra suturam situs; canalis brevis, vix recurvus.

Long. 12 mill., diam. 4.

Hab. Cape Three Points (*Voyage H.M.S. 'Herald'*).

The two apical whorls are large and give the apex a mammillated aspect.

Pleurotoma (Drillia) cretata.

Testa acuminato-turrita, alba; anfract. 11, superne concavi, inferne convexi, costis obliquis versus suturas evanidis (in anfr. ultimo 12 basi attenuantibus) instructi, striis spiralibus (in anfr. superioribus 5-6, in ultimo circiter 17) insculpti; apertura longitudinis totius $\frac{1}{3}$ adæquans; columella callo crassiusculo ad suturam valde tuberculosa labroque juncto induta; sinus amento similis; canalis brevis, recurvus.

Long. 24 mill., diam. 8.

Hab. Panama (*A. H. Cooke*).

This species differs from *P. pallida*, Sow., in having the upper part of the whorls excavated, in the ribs being almost

obsolete above and not ending nodulously, as in that species, and the spiral striæ are finer.

Pleurotoma (Drillia) multicostellata.

Testa elongate ovato-fusiformis, subturrita, alba; anfract. 11, primi 3 convexi, politi, læves, cæteri planiusculi, superne sutura undulata carinata discreti, infra carinam sulco spirali angusto impressi, infra sulcum costis tenuibus subrectis regularibus (in anfr. ultimo 14-16 inferne subnodulosi fere ad basim continuis) instructi, sulcis spiralibus concinne ornati; anfract. ultimus infra peripheriam leviter constrictus; apertura parva, longitudinis totius $\frac{2}{3}$ adæquans; sinus angustus; canalis brevissimus.

Long. 18 mill., diam. fere 6.

Hab. Philippines.

This pure white shell is remarkable for the regularity of the ribs, abruptly terminated above by the narrow furrow, which is situated just below the keel at the suture. The transverse sulcations are very regular. Its closest ally is *P. sinensis*, Hinds.

Pleurotoma (Drillia) fijiensis.

Testa fusiformis, alba, superne inferneque ad suturam dilute flavo fasciata; anfract. 9, primi 2 politi, convexi, læves, pallide rubescentes, cæteri convexi, superne concave excavati, costis obliquis superne attenuatis (in anfr. ultimo 11 basi evanidis) instructi, liris spiralibus 3 supra costas nodulosi in interstitiis obsolete ornati; anfr. ultimus liris circiter 15 (quarum modo superiores 3 nodulosæ sunt) cinctus; apertura longit. totius $\frac{1}{2}\frac{0}{3}$ æquans; canalis subelongatus, dextrorsum inclinatus, recurvus; sinus magnus, profundus; columella leviter tortuosa, callo induta.

Long. $11\frac{1}{2}$ mill., diam. $3\frac{1}{2}$.

Hab. Ovalau, Fiji Islands, 12 fathoms.

The transverse yellow bands are so very pale as to be scarcely visible; in one example they are quite obsolete.

Pleurotoma (Drillia) dejecta.

Testa fusiformis, alba, circa peripheriam fusco obsolete unizonata; anfract. 10, primi 2 læves, politi, cæteri supra concaviusculi infra convexi, costis inferne incrassatis (in anfr. ultimo 8 haud basi attingentibus, una validissima aliquanto pone labrum sita) instructi, liris tenuibus spiralibus ad 5 (in anfr. ultimo circiter 15, circa caudam 5-6 quam aliis majoribus) cincti; apertura longitudinis totius $\frac{4}{3}$ adæquans; canalis angustus, recurvus; sinus profundus; columella subrecta, callosa, superne tuberculata.

Long. 13 mill., diam. $4\frac{1}{2}$.

Hab. Philippine Islands.

The ribs on the body-whorl are terminated inferiorly by the spiral lirations around the cauda, which are rather thicker than those on the rest of the shell.

Pleurotoma (Drillia) semipellucida.

Testa breviter fusiformis, tenuis, alba; anfract. 10, primi 2 læves, politi, cæteri convexiusculi, costis leviter obliquis, flexuosis instructi (in anfr. penultimo 11, in ultimo 18 basi fere continuis, costis 5-6 ultimis supra tergum anfractus obsoletis), inter costas subdistanter punctato-striati; apertura longit. totius $\frac{8}{21}$ adæquans; columella callo crassiusculo superne incrassato suturæque juncto induta; labrum aliquanto expansum, extra leviter incrassatum; sinus mediocris; canalis angustus, leviter recurvus. Long. $10\frac{1}{2}$ mill., diam. $3\frac{1}{2}$.

Hab. ———?

The whorls are very slightly contracted above. On the back of the body-whorl there is one rib very much larger than the rest, and from it to the labrum is smooth. The punctured striation is very characteristic.

Pleurotoma (Drillia) persica.

Testa breviter fusiformis, nitens, alba, inter costas dilute fusco tincta; anfract. 8, primi 2 læves (secundo medio angulato), cæteri superne excavati, inferne convexiusculi, sutura undulata sejuncti, costis superne obsoletis (in anfr. ultimo 10 basi attenuantibus) instructi; anfr. ultimus circa caudam liris tenuibus 5-6 ornatus; apertura longit. totius $\frac{7}{18}$ adæquans; columella callo tenui ad suturam incrassato induta; sinus magnus; canalis brevis, recurvus. Long. 9 mill., diam. 3.

Hab. Persian Gulf (*Colonel Pelly*).

This species resembles *D. disjecta* considerably at first sight; however, the larger size and the difference of the ribs, which are not nodulous above, are characters at once distinguishing it. It is somewhat like *D. obliqui-costata*, Reeve, in miniature.

Pleurotoma (Drillia) paucistriata.

Testa elongata, breviter subulata, alba, inter costas prope suturam et supra tergum anfr. ultimi dilute fusco maculata; anfract. 9, primi 2 læves, cæteri stria spirali paululum infra suturam sita bipartiti, costis superne nodulosi, obliquis instructi (in anfr. penult. 11, in ultimo circiter 5, cæteris obsoletis), striis distantibus 2-3 (in anfr. ultimo ad 9) insculpti; apertura brevis, longit.

totius $\frac{3}{10}$ adæquans; columella callosa, superne tuberculata; labrum extus incrassatum; canalis brevissimus, recurvus.
Long. 10 mill., diam. 3.

Hab. California.

On the back of the body-whorl there is a kind of swollen rib and the spiral striation has a semipunctate appearance.

Pleurotoma (Drillia) disjecta.

Testa breviter fusiformis, nitens, alba, inter costas dilute fusco tincta; anfract. 8, primi 2 convexi, læves, cæteri convexiusculi, paululum infra suturam undulatam sulco angusto bipartiti, longitudinaliter costati, costis superne supra sulcum nodulosi, inferne crassis (in anfr. ultimo 10 versus basim attenuantibus); anfr. ultimus pone labrum haud costatus circa caudam albam liris ad 6 cinctus, in tergum fusciscenti maculatus; apertura parva, longitudinis totius $\frac{5}{14}$ adæquans; columella callo juxta suturam incrassato labroque juncto induta; sinus magnus, profundus; canalis brevis, fusciscentis, recurvus.

Long. $7\frac{1}{2}$ mill., diam. $2\frac{1}{2}$.

Hab. Persian Gulf (*Colonel Pelly*), China Sea, and Ovalau, Fiji.

In one specimen the furrow or depression a little below the suture is well defined, producing an undulating keel above it.

Pleurotoma (Drillia) Cookei.

Testa fusiformis, nitens, rubescens, circa medium anfractuum obscure pallide zonata; anfract. 7, primus magnus, lævis, cæteri convexiusculi, longitudinaliter costati, costis crassis, flexuosis, in anfr. ultimo 10 versus basim attenuatis sed subito liris gracilibus ad 8 circa caudam abruptis; anfr. ultimus zona secunda pallida infra medium indistincte ornatus; apertura superne ovata, inferne contracta, longit. totius $\frac{5}{13}$ adæquans; sinus magnus, profundiusculus; canalis subelongatus, recurvus, dextrorsum inclinatus; columella callo tenui superne labro juncto induta.

Long. $6\frac{1}{2}$ mill., diam. 2.

Hab. Jamaica.

This little species is unlike any other in the family. I have named it after the Rev. A. H. Cooke, who, besides other valuable work, has done much to clear up the errors which occur in the collection of the late R. MacAndrew, and who kindly presented the six specimens of this species in the Museum.

Pleurotoma (Crassispira) bifurca.

Testa elongata, pyramidalis, lutescens, inter tuberculas nigro tincta;

anfract. 12, superne juxta suturam carinati, infra carinam concavi et spiraliter exiliter striati, inferne tuberculorum magnorum 10 seriebus instructi, a tuberculis singulis decurrunt costæ duo nodosæ; anfr. ultimus supra costas tenues nodulis flavis 4 (qui series spirales 4 formant) ornatus, striis spiralibus tenuibus incrementique lineis insculptus, longe pone labrum incrassatus; apertura parva, intus fuscescens, longit. totius $\frac{3}{8}$ adæquans; columella callo crassiusculo fuscescenti juxta suturam valde tuberculosa induta; labrum supra nodulas mediocriter sinuatum; canalis brevissimus.

Long. 21 mill., diam. 7.

Hab. —?

The general colour of this shell is dirty yellowish, the lower half of the upper whorls between the nodules being black, as is also the middle portion of the body-whorl. The four spiral series of little tubercles on the fine ribs of the last whorl are bright yellow. That two riblets bifurcate from each of the large tubercles is very remarkable.

Pleurotoma (Mangilia) fulgens.

Testa ovata, subturrita, nitens, alba, supra costam ultimam anfr. ultimi macula parva, pallide fusca notata; anfractus 6, primi 2 læves, convexi, cæteri paululum minus convexi, aliquanto supra medium obsolete angulati, costis fere rectis 11–12 (in anfr. ultimo fere ad basim continuis, ultima pone labrum quam cæteris valde majore) instructi, et liris spiralibus 3–4 supra costas leviter incrassatis, et supra angulum obsoletum liris aliis duabus tenuioribus cincti; anfr. ultimus liris 16–18, quarum circiter 8 circa caudam quam superioribus confertiores sunt, ornatus; apertura anguste ovata, longit. totius $\frac{1}{2}$ æquans; labrum extra incrassatum, superne satis distincte sinuatum, intus infra sinum unidentatum; columella tenuiter callosa; canalis brevis, angustus.

Long. 5 mill., diam. 2.

Hab. —?

The pale dot on the last rib is so small and indistinct that it might easily be overlooked. The uppermost of the three or four chief spiral lirationis is situated a little above the middle of the whorls, and it is at this point that they appear to be slightly angulated.

Pleurotoma (Mangilia) notabilis.

Testa ovata, turrita, alba, transversim flavescenti fasciata; anfractus 6, supremi duo læves, convexi, cæteri convexiusculi, costis paululum obliquis circiter 11 (in anfr. ultimo basi continuis) instructi, ubique spiraliter conspicue (præcipue inter costas) striati; anfr.

ultimus fasciis quatuor cinctus, quarum una juxta suturam, unaque circa medium versus labrum castaneo tinctæ sunt; apertura angusta, longitudinis totius $\frac{1}{2}$ paulo superans; labrum extus valde incrassatum, superne leviter sed distincte sinuatum; canalis brevissimus, truncatus.

Long. $4\frac{1}{3}$ mill., diam. $1\frac{2}{3}$.

Hab. — ?

The spiral striations are deep and are placed in pairs. The yellowish bands are not very conspicuous, but on the back of the body-whorl one of them at the suture and one in the middle of the labrum become of a deep brown or chestnut colour.

Pleurotoma (Mangilia?) recta.

Testa ovato-fusififormis, albida, inter costas pallide olivaceo tincta, et circa medium anfr. ultimi zona alba angusta ornata; anfract. 7, primi 2 læves, politi, tertius spiraliter minute granulatus, cæteri superne leviter excavati, deinde convexiusculi, costis 8-9 medio exigue angulati (in anfr. ultimo basim versus attenuantibus) instructi, ubique spiraliter tenuissime striati, striis paucis quam cæteris majoribus, et incrementi lineis minute decussati; apertura longit. testæ totius $\frac{9}{19}$ adæquans; columella rectiuscula, callo tenui induta; labrum costa ultima munitum, paululum infra suturam parum sinuatum; canalis subelongatus, latiusculus.

Long. 8 mill., diam. fere 3.

Hab. Persian Gulf (*Colonel Pelly*).

This species is remarkable for the granular aspect of the third whorl. Between the ribs, which are white and scarcely reach to the suture above, it is of a pale olive-brown colour; the cauda also is white, and a narrow white stripe encircles the last whorl, interrupting the olive-brown colour of the interstices.

Pleurotoma (Mangilia) Fordii.

Testa fusiformi-ovata, alba; anfractus 6, primi duo læves, convexi, politi, cæteri convexiusculi, costis rotundatis circiter 8, superno versus suturam leviter attenuatis (ad basim anfr. ultimi evanidis) instructi, ubique striis confertis minutis quarum 2-3 (et in anfr. ultimo plures) quam cæteris crassiores sunt, spiraliter insculpti; apertura parva, angusta, longitudinis totius $\frac{3}{4}$ adæquans; labrum extra costam ultimam incrassatum, superne leviter sinuatum, intus incrassatum et unidentatum; columella tenuiter callosa; canalis brevissimus.

Long. $4\frac{1}{3}$ mill., diam. $1\frac{1}{2}$.

Hab. — ?

This unpretending little shell has for its chief distinctive characters the rounded ribs and fine spiral striation, and the lip is thickened within at a little distance from the acute margin.

Pleurotoma (Mangilia) parilis.

Testa oblonga, subturrita, alba, inter costas prope sed infra suturam rufo maculata, et supra costas punctorum ruforum seriebus spirali- bus 2-3 (in anfr. ultimo 3-4) ornata; anfract. 7, supremi duo læves, convexi, cæteri paululum convexi, inferne leviter angustiores quam supra, costis subobliquis 9-10 (in anfr. ultimo ad basim attingentibus) instructi, ubique tenuissime denseque spiraliter striati; apertura angusta, longit. totius $\frac{1}{2}$ vix æquans; labrum incrassatum, superne semicirculariter sinuatum; canalis brevis, angustus.

Long. $7\frac{1}{2}$ mill., diam. $2\frac{2}{3}$.

Hab. Gulf of California.

This species possesses some affinity with *P. Goodingii*, but the ribs are not regularly continuous, less prominent, and thicker; it is differently coloured, and the form is less acuminate at both ends. Three specimens placed as varieties are a little shorter in the spire and their outer lips are somewhat thicker.

Pleurotoma (Mangilia) lata.

Testa brevis, lata, turrita, alba, supra labrum rufo unimaculata; anfractus 5-6, primi 2 convexi, læves, nitentes, cæteri superne decliviter tabulati, deinde angulati, infra angulum plani, sed versus suturam obliqui, costis 12, subrectis (in anfr. ultimo ad basim continuis) instructi, et liris spiralibus 3-4, suprema circa angulum sita, cæteris infra illum, succincti; anfr. ultimus liris circiter 15 ornatus; apertura longit. totius $\frac{1}{2}$ æquans; labrum incrassatum superne valde sinuatum; columella tenue callosa; canalis brevissimus.

Long. $4\frac{1}{3}$ mill., diam. 2.

Hab. China seas.

The broadest part of the whorls is at the angle, and they are contracted below it. This species is remarkable for its short broad form and its tabulated spire. Faint brown spots are occasionally traceable below the suture between the ribs, and above the angle two or three spiral lirations much finer than those below sometimes occur.

Pleurotoma (Mangilia) decipiens.

Testa oblongo-ovata, alba; anfractus 7, primi 3 læves, politi, convexi, cæteri leviter convexiusculi, costis 8-9 (in anfr. ultimo fere ad basim continuis) instructi, et spiraliter crebre fortiterque, præcipue inter costas, striati; apertura parva, longit. totius $\frac{1}{2}$ paulo minor; labrum costa ultima incrassatum, superne valde semicirculariter sinuatum; canalis brevissimus, truncatus.

Long. 6 mill., diam. 2.

Hab. — ?

This species has no very marked distinctive character. The spiral striations are generally rather coarse, but some are finer than the others, and the ribs on the body-whorl become more remote from each other as they approach the labrum.

Pleurotoma (Mangilia) Lischkei.

Testa ovato-fusiformis, turrita, sordide albida, lineis tribus rufis obscuris ornata; anfractus 6, supremi tres perconvexi fere læves, cæteri medio subangulati, costis tenuibus circiter 12 instructi, et lira unica obsoleta circa angulum cincti, ubique spiraliter obsolete striati; anfr. ultimus costis paululum ante basim liris spiraliter 8-10 circa caudam interruptis; apertura longit. totius $\frac{1}{2}$ adæquans; labrum extus incrassatum, superne leviter sinuatum; canalis angustus, brevis.

Long. $6\frac{1}{2}$ mill., diam. $2\frac{1}{2}$.

Hab. Japan.

The third whorl is seen to be finely, longitudinally, arcuately lirated in some specimens, and the spiral striation is very faintly developed. In the specimens before me, which are not in good condition, the spiral reddish lines, of which there appear to be three on the body-whorl, are very indistinct.

Pleurotoma (Mangilia) castellata.

Testa oblonga, turrita, alba; anfract. 6-7, primi 2 læves, convexi, cæteri tabulati et angulati, ad latera plani, inferne versus suturam angustati, costis pliciformibus tenuibus, valde prominentibus, superne ad suturam subrotunde angulatis (in anfr. penult. 8, in ultimo 7 basi continuis) instructi, ubique dense minuteque spiraliter striati; apertura angusta, longit. totius $\frac{1}{2}$ fere æquans; labrum costa ultima fortiter incrassatum, superne semicirculariter sinuatum; canalis brevis, angustus, truncatus.

Long. $6\frac{1}{2}$ mill., diam. $2\frac{1}{2}$.

Hab. — ?

This is a very elegantly formed shell. The whorls are

narrower at the base than above, thus producing the turreted aspect. The plicate ribs are very prominent and the penultimate on the body-whorl is considerably remote from that which forms the labrum. As they are rather produced at the upper end the whorls have a somewhat castellated appearance, and in all the four examples which I have examined they are continuous up the spire.

Pleurotoma (Mangilia) fortistriata.

Testa ovata, albida; anfractus 7, primi 2 læves, politi, cæteri convexi, costis crassis 7 (super spiram plerumque continuis) in anfr. ultimo basi continuis instructi, et striis spiralibus fortibus ubique insculpti; apertura parva, longit. totius $\frac{5}{13}$ adæquans; labrum validissime incrassatum, intus dentibus 4-5 parvis munitum, et paululum infra suturam leviter sinuatum; canalis angustus, brevis.

Long. $6\frac{1}{2}$ mill., diam. $2\frac{1}{2}$.

Hab. Bombay.

This is a strong solid species with seven stout rounded ribs continuous up the spire and extending to the base of the body-whorl.

Pleurotoma (Mangilia) mamillata.

Testa subovata, lutescens; anfractus 5, primi duo magni, læves, convexi, papilloso, cæteri convexi, costis 7-8 supra spiram subcontinuis (in anfr. ultimo ad basim productis) instructi, ubique tenuissime spiraliter striati, et liris spiralibus 2-3 parum prominentibus sed supra costas leviter incrassatis prope medium cincti; anfract. ultimus liris circiter 8 ornatus; apertura longitudinis totius quam $\frac{1}{2}$ paulo minor; labrum valde incrassatum, levissime sinuatum; columella callo tenuissimo induta; canalis brevis, angustus.

Long. $5\frac{1}{3}$ mill., diam. 2.

Hab. —?

This shell is very remarkable on account of the large size of its nuclear whorls. When more specimens are examined this may prove to be but an individual peculiarity.

Pleurotoma (Mangilia) subquadrata.

Testa ovata, turrata, cornea, superne ad suturas inter costas rufo tincta et circa anfract. ultimum paulo infra medium rufo zonata; anfract. 7, apicales pallidi, cæteri superne decliviter tabulati et angulati, infra angulum planiusculi, costis tenuibus 12-14 et liris spiralibus gracilibus 2-3 (in anfr. ultimo circiter 10) cancel-

lati, et in interstitiis striis spiralibus squamulatis incrementique lineis minute decussati; apertura parva, longit. totius $\frac{6}{13}$ adæquans; labrum pallidum, valde incrassatum, intus superne inferneque tuberculo parvo munitum; sinus levis, subsemicircularis; canalis brevis, angustus, ad basim truncatus.

Long. $5\frac{2}{3}$ mill., diam. $2\frac{1}{3}$.

Hab. St. Helena.

This very pretty little species has very much the form of *P. quadrata*, Reeve, but is very different in sculpture and colour. The three apical whorls, the labrum, and usually the lower extremity of the body-whorl are whiter than the rest of the shell, which is of a pale yellowish horn-colour. The reddish zone encircling the body-whorl a trifle below the middle defines the whitish extremity and extends to the labrum, upon which in fresh specimens it is darker than elsewhere. The minute, microscopic, squamose cancellation which generally is chiefly observable in the interstices between the coarser sculpture is a good distinguishing feature. This is a smaller and stouter species than *P. gemma*, has more sharply angled whorls, rather stronger sculpture, and is different in form, the body-whorl being more contracted and slender below the middle.

Pleurotoma (Mangilia?) granilirata.

Testa elongato-subpyramidalis, sordide albida; anfract. 7-8, primi duo læves, convexi, cæteri convexiuseculi, costis subrectis 8 (in anfr. ultimo fere ad basim continuis) instructi, et liris tenuibus confertis granosis (quarum 2-3 in anfr. superioribus, et circiter 12 in ultimo quam cæteris majores sunt) ubique cineti; apertura parva, pallide fuscescens, longit. totius $\frac{1}{3}$ paulo superans; columella lævis, labrum extra incrassatum, superne leviter sinuatum, intus dentibus parvis 4-5 munitum; canalis angustus, brevis.

Long. $5\frac{2}{3}$ mill., diam. 2.

Hab. — ?

The spiral lirations which cover the entire surface are beautifully minutely granulous. Of the four or five little teeth within the labrum the upper one, which is situated just below the slight sinus, is the largest.

Pleurotoma (Clathurella) scabrata.

Testa fusiformi-ovata, lutescenti-fusca, circa anfractuum medium lineis lacteis 1-2 cineta; anfract. 9, supremi 2-3 minute oblique reticulati, cæteri mediocriter convexi, costis circiter 16 (in anfr. ultimo fere ad basim continuis) instructi, incrementique lineis

striati, et liris spiralibus tenuibus 6-7 (in anfr. ultimo ad 27) et striis aliis interpositis succincti; apertura fuscoscens, longitudinis totius $\frac{1}{2}$ adæquans; labrum leviter incrassatum, superne juxta suturam sinu parvo semicirculari ornatum; columella tortuosa; canalis breviuseculus, angustus.

Long. 15 mill., diam. $5\frac{1}{2}$.

Hab. — ?

The few opaque lacteous lines encircling the whorls, chiefly near their middle, are not very distinct. The lines of growth are rather strongly developed, and on crossing the transverse lirations give them a roughened or subgranose appearance. The labrum in the three specimens examined is scarcely perfect, and possibly therefore it may be lirate within.

Pleurotoma (Clathurella) crassilirata.

Testa oblonga, turrata, alba; anfractus 7, sutura profunda sejuncti, primus lavis, sequentes duo tenuiter areuate costati, cæteri convexiuseculi, costis crassiusculis 9-10 (in anfr. ultimo ad basim continuis) instructi, liris spiralibus 5 (in anfr. ult. circiter 16) super costas incrassatis cincti, et inter liras tenuiter spiraliter striati; apertura angusta, longit. totius $\frac{1}{2}$ adæquans; labrum extus valde incrassatum, intus denticulis 7 armatum, superne leviter sed distincte sinuatum; columella tenuiter callosa, liris transversis 8-9 munita; canalis brevis, truncatus.

Long. $7\frac{1}{3}$ mill., diam. $2\frac{2}{3}$.

Hab. — ?

The lirations on the columella are rather strongly developed. The uppermost spiral lira on the whorls is slender and situated close to the one adjacent below it.

Pleurotoma (Clathurella) pachychila.

Testa elongato-subovata, alba, nitens; anfract. 7-8? (apice abrupto), reliqui 4 convexiuseculi, costis rotundatis circiter 11 (in anfr. ultimo fere ad basim continuis) instructi, et liris spiralibus validis 4-5 (in anfr. ult. ad 12) supra costas leviter incrassatis cincti; apertura ovata, longit. totius $\frac{2}{3}$ adæquans; labrum costa ultima validissima maxime incrassatum, superne levissime sinuatum; columella arenata, callo tenui induta; canalis perbrevis, angustus.

Long. 4 mill., diam. $1\frac{1}{2}$.

Hab. — ?

This species is remarkable for the immense thickening of the labrum; the liration at the top of the whorls is rather thicker than the rest.

Pleurotoma (Clathurella) munda.

Testa anguste ovata, alba; anfractus 7, supremi duo læves, cæteri convexiusculi, costis crassis circiter 9 instructi, et liris spiralibus tribus tenuibus sed maxime elevatis cincti, sutura filiformi sejuncti; anfractus ultimus costis paululum ante basim evanidis, et liris 11-12 ornatus; apertura parva, longitudinis totius $\frac{1}{3}$ paulo superans; labrum extus incrassatum, superne levissime sinuatum, intus denticulis 2-3 armatum; columella callo tenui induta, in medio liris duobus transversis munita; canalis angustus, brevis. Long. $4\frac{1}{2}$ mill., diam. $1\frac{2}{3}$.

Hab. Persian Gulf and China Sea?

This species is especially remarkable for the fine yet very prominent thread-like lirations encircling the whorls. The longitudinal ribs are stout, rounded, and equalling in width the interstices between them.

Pleurotoma (—?) contempta.

Testa elongata, angusta, subfusiformis, albida, ad apicem fuscescens; anfractus 10, perconvexi, superne juxta suturam sulco angustiusculo sulcati, costis rotundis 9-10 superne ad sulcum terminatis (in anfr. ultimo paululum infra medium evanidis) instructi, transversim confertim lirati, liris circiter 8 inæqualibus supra costas leviter incrassatis; anfr. ultimus infra medium constrictus, in caudam brevem productus; apertura parva, longitudinis totius $\frac{1}{3}$ adæquans; labrum tenue, ad suturam leviter incisum; canalis obliquus, angustus, leviter recurvus. Long. 9 mill., diam. 3.

Hab. —?

The whorls are very convex, and at the upper part close to the suture there is a spiral furrow or concavity striated faintly in a longitudinal direction. The spiral lirations are about twenty-four in number on the body-whorl.

Pleurotoma (Bela?) incondita.

Testa elongata, ovato-fusiformis, sordide albida; anfract. 6-7, supremi duo læves, magni, cæteri medio convexi, longitudinaliter costati, costis vel plicis circiter 15 parum prominentibus (in anfr. ultimo minus conspicuis et versus medium fere obsoletis) et transversim subdistanter maxime profunde sulcati; apertura elongata, longitudinis totius $\frac{1}{2}$ fere æquans; labrum tenue, prope suturam leviter sinuatum; columella rectiuscula, simplex; canalis brevis, latiusculus. Long. 11 mill., diam. $3\frac{1}{2}$.

Hab. — ?

The nuclear whorls in this species are rather large in proportion to the size of the shell. The longitudinal ribs are but slightly developed, and at the first glance the surface appears nearly smooth.

XXXIX.—On a new Species of *Diphyphyllum*, and on a remarkable Form of the Genus *Lithostroton*. By JAMES THOMSON, F.G.S.

THE object of the present communication is to describe a new species of the genus *Diphyphyllum*, Lonsdale, and a remarkable form of the genus *Lithostroton*, Luidius. The discovery of the former is due to His Grace the Duke of Argyll, whose attention was directed to a remarkable boulder that was exhumed by a farmer while digging a drain in the boulder-drift on the farm of Carskey, near the south end of Kintyre, Argyllshire. Notably, amongst other erratics, there are numerous fragments and boulders of granite, traceable to the island of Arran, situated to the east. This boulder, so unlike the others, when more carefully examined, was found to be a mass of Carboniferous coralline limestone. This species of *Diphyphyllum** was noticed in my paper on that genus published in the 'Quarterly Journal of the Geological Society,' February 1887; it was not, however, included for reasons that will be noted further on.

The species of *Lithostroton* I discovered at Blackridge, Dumfriesshire, since the publication of my paper on that genus ('Transactions of the Edinburgh Geological Society,' February 1887).

The genus *Diphyphyllum* was defined by Lonsdale in Murchison, Keyserling and de Verneuil's 'Geology of Russia and the Urals' (Appendix, p. 622). Lonsdale's definition was fully reviewed in the above-mentioned communication, and therefore need not be recapitulated. Briefly, he rests his definition of the genus principally upon the mode of reproduction, *i. e.* fissionarity, and the dichotomous branches. In the present species the mode of reproduction is by calicular gemmation, and the corallites are in dense masses and united—characters unlike those of any of the then-known species of the genus; consequently its publication was deferred, and the

* To His Grace I offer my thanks for permitting me to add it to the list of Carboniferous corals.